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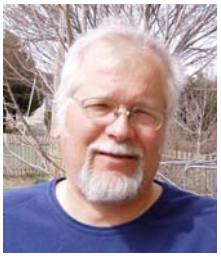

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Plant Disease in Kansas

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HIGHLIGHTS

Pine wilt continues to kill trees across the eastern half of Kansas. Over the past month, pine wilt has been reported in Scot's and Austrian pines.

Wheat streak mosaic has started to move into planted wheat fields. Low levels were found in southwest Kansas in early October.

OUTLOOK

Recent weather has been variable across the state. Periods of high temperatures and wind have been mixed with cool temperatures and rain. Wheat should germinate in previously planted fields that were dry. Wheat streak mosaic should begin to develop symptoms in early planted fields.

Pine trees have been dying daily from pine wilt. Look for new trees to show wilt symptoms till early December.

PINES

Austrian and Scot's pines were found in windbreaks, parks, and landscapes with pine wilt disease in the central third of the state. The disease has moved into the eastern region of Mitchell County in north central Kansas and becoming more predominated in Rice

County in central Kansas and in the south central counties of Reno and Kingman counties. It is epidemic in such communities as McPherson and Newton. The problem in these communities where it has become epidemic is that trees are not being removed and infection continues from these disease foci and spread to neighboring trees. In areas revisited over the past four weeks, one can see new "dead" trees almost on a weekly basis.

A new find was made in Barton County two weeks ago and appears at this time to be an isolated case on Scot's pine. The Kansas Department of Agriculture plans on cleaning up this site to prevent further disease development.

In survey of southwest Kansas and speaking with extension agents, the disease is not believed to be established in the southwest.

Below is a current map of pine wilt status in Kansas.

Figure 1. Pine wilt map of Kansas.

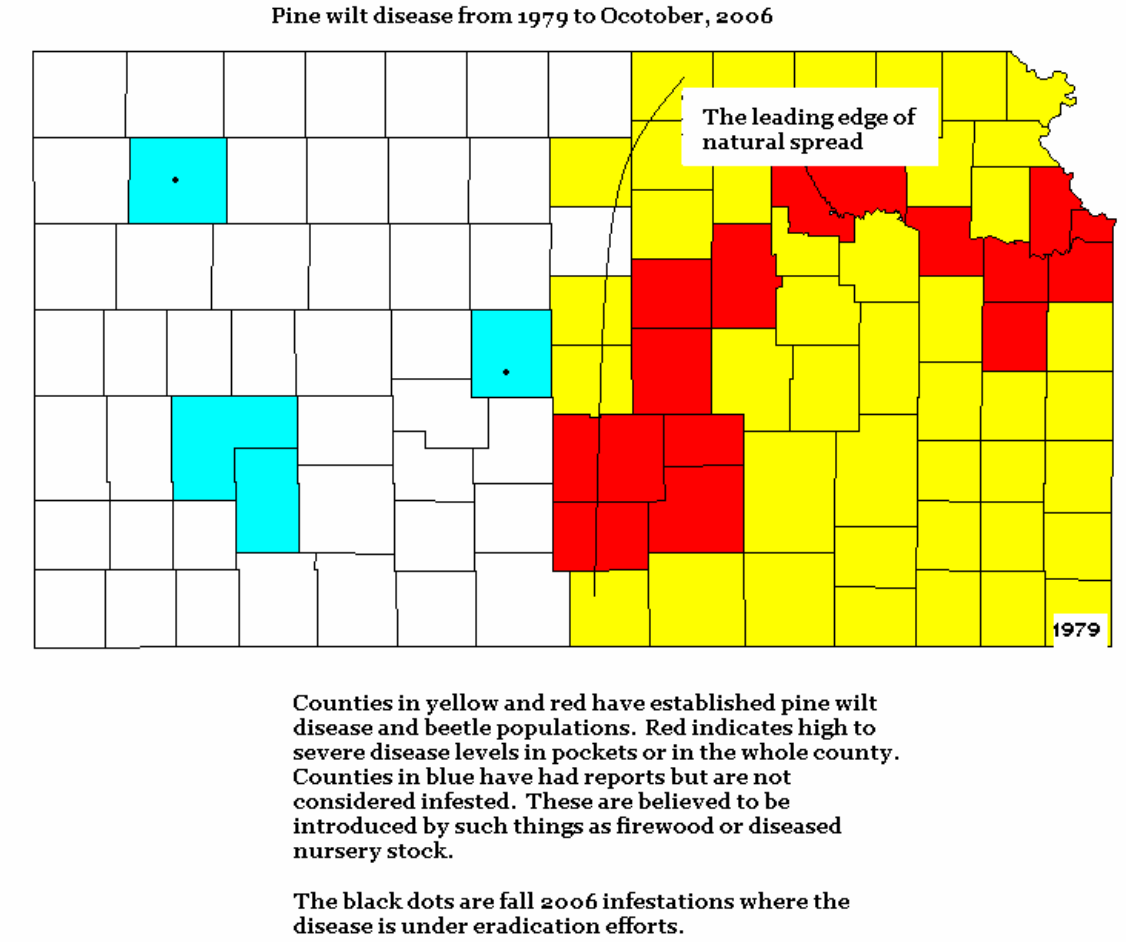
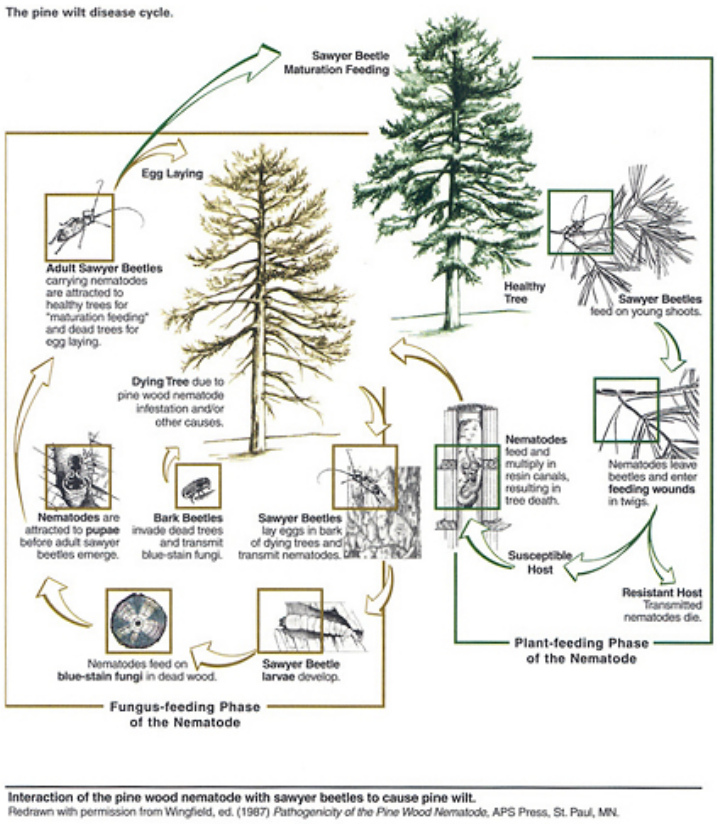


Figure 2. Austrian pine with pine wilt in Kingman County, these pines are over 50 feet tall.

Another problem to the current epidemic in south central Kansas was the movement of pine wilt into the older conservation windbreaks common to the area. These large Austrian pines are huge trees and are the anchor to many of these important tree stands. The disease was documented in windbreaks in Kingman and Reno counties.

Below is the disease cycle of the pine wilt disease with the long horned beetle and blue stain fungus. The blue stain fungus is not always necessary but is an important part of the cycle. The important aspect for control of this disease cycle is the larval stage of the beetle in the dead or dying pine wood. If the wood is destroyed before adult emergence in the spring by chipping, burying, or burning the disease cycle is broken and control can be achieved by limiting further infestation of healthy pines. This should be done in the fall and winter months in Kansas.



Interaction of the pine wood nematode with sawyer beetles to cause pine wilt.
Redrawn with permission from Wingfield, ed. (1987) *Pathogenicity of the Pine Wood Nematode*, APS Press, St. Paul, MN.

Figure. 3 Pine wilt disease cycle (American Phytopathological Society)

Diplodea tip blight was also observed causing death of Austrian pines in Kingman and Reno counties. This disease in the past has been documented as killing large stands of trees in Kansas. Symptoms include tip blight, trunk cankers, and slow death. Pine cones

have the black fruiting structures of the underside of the cones. If cut into, limbs will usually have resin as opposed to the absence of resin in pine wilt trees. A lab or microscopic examination of cones and branch tissue is often needed to differentiate the two diseases.

WHEAT

Wheat streak mosaic is beginning to build up. Warm temperatures of a week ago were ideal for wheat curl mite populations which transmit the virus from plant to plant. Some infection was noted in early October in Finney County along the field margins next to grassy weeds in the ditch which harbor the disease and to neighboring fields with volunteer wheat.

Frost in the fall often kills some of these harboring hosts of wheat curl mites and wheat streak mosaic forcing the mite to survive by migrating to planted wheat.